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GLOBAL ENERGY AND ENVIRONMENTAL SECURITY IN THE CURRENT GLOBAL ECONOMIC CRISIS

This article considers the problems of the environmental impact of energy. Further reduction of this impact on the global environment can be achieved two ways. The short-term one implies the increase in energy efficiency. In the next 15—20 years, the increase in efficiency should become a priority of the energy policy of all states. The long-term one is based on the gradual expansion of renewable energy. This method is aimed to avoid further economic and energy crises. At the same time, it has an important environmental aspect. Experts claim that the new area of global energy should be less costly than the traditional ones.

Key words: energy security, environmental security, global climate control, renewable energy sources, energy system with reduced use of fossil fuels, energy policy.

The current global economic crisis exacerbated many problems related to the provision of global security in different fields including energy and ecology. One should mention that there are several approaches to the definition of 'energy security'; this term has no generally accepted definition. Therefore, it gives room to different interpretations by international diplomats and experts who proceed from their national interests and priorities. Moreover, there are different levels of energy security. It is, first of all, a national, regional, and global level. The concepts of energy security corresponding to each level also differ significantly.

The term 'energy security' came into use in world politics and international relations in 1973, as the first global energy crisis arose. It is important to mention here that this (primarily, oil) crisis indicated the dependence of the leading industrial countries on energy supply. Such states as the USA, Japan, and Western European countries faced the need to formulate a common energy policy.

Until recently (the early 1980s), the term 'energy security' was defined as a rule in the framework of one state, i.e. at a national level, and stood for 'national energy security'. In this context, security was usually defined as energy supply necessary for the functioning of the national and international economy, i.e. it encompassed only energy self-sufficiency. Today, national energy security is more and more often considered in the light of national security in general, as one of its crucial components. It is understood as the protection of citizens and the state from the threat of shortage in all energy types arising due to the interaction of negative natural, anthropogenic, administrative, socioeconomic, and domestic and foreign policy factors.

The interpretation of energy security as sufficient energy supply at a national level is typical of oil importing countries that are interested in uninterrupted energy supply and a reduction in energy prices. Nevertheless, the interests of these states in the world energy market seldom coincide with those of the other participants – energy exporting states that have another approach to the provision of global energy security.

Contemporary research on global energy security offers two opposite approaches to its provision. The first one is the liberal western model of energy resource management (the so-called Washington Consensus), which is aimed, first of all, at the removal of political barriers limiting the access of foreign investors to energy and raw material sources as well as to the promising markets of developing countries. At the same time, direct foreign investment is used as a tool for the efficient privatisation of the oil and gas sector to the benefit of developed importing countries. Here, energy resources are considered as regular commodities and the demands of exporting countries are hardly taken into account.

Their key demands can be formulated as follows. First of all, it is a due regard to the huge financial expenditure of oil and gas producing states on field development, the creation of new transport infrastructures and the maintenance of the existing ones that sometimes can expand on a continent-wide scale. More often than not, new fields are being developed in hard-to-reach areas, which leads to a further increase in expenditure. Secondly, exporting countries expect the consumers to guarantee continuous purchase of energy resources in a long-term perspective. Only this approach may give the exporters assurance that their huge expenditure will pay for itself.

The second model of the provision of global energy is entitled the Beijing Consensus. This model is usually used by BRIC and OPEC countries. Most of them could combine state control over strategic branches of national economy and, first of all, the energy industry with the high efficiency of private sector management. The advocates of the Beijing Consensus believe that energy resources should not only be public property but also become a solid base of national security. These countries use energy export revenues for the modernisation of the economy and the improvement of living standards.

Most of developed western countries follow the first model of energy security, while Russian and China adhere to the second one. For example, the USA is the world's largest energy importer. "The United States", Michelle Billig writes, "is now more dependent on oil imports than ever before. In 1950, it imported just one-tenth of its oil supplies. By 1973, the share of imported oil had grown to one-third. Today, the United States gets nearly two-thirds of its petroleum from abroad" [2, p. 3].

Furthermore, we are convinced that research on the issues of energy security should take into account factors leading to price instability in the world energy market. This instability has increased in the conditions of the current global economic crises. In our opinion, the reasons are as follows. Firstly, it is unproven oil reserves, the assessment of which differs from field to field according to their economic recoverability. Secondly, it is technological advances in the oil production that result in the cost reduction and enables new countries to compete successfully in the world market compensating for the exhaustion of the most favourable in terms of nature and geography oil deposits.

Thirdly, price fluctuation results from the fact that, at certain stages, energy consumption growth outpaces industrial and extraction capacity. One

should take into account that geological reserves are unevenly distributed over the planet's surface and can be located at a vast distance from potential consumers. Recently, there appeared new consumption centres characterised by high rates of economic growth and population increase, namely, India and China. So, Diana Farrell, the director of the McKinsey Global Institute writes: "The economic race between China and India is changing the way the world does business. By 2050, it is estimated that these two Asian heavy-weights will account for nearly half the world's gross domestic product, up from just 6 percent today." [4, p. 30].

Fourthly, the trading of oil futures at the leading energy exchanges provided the basis for the movements of speculative capital. The flow of speculative capital leads to a dramatic rise in prices unrelated to the increase in energy consumption in world economy, while its outflow contributes to price collapses.

A brief analysis of pricing factors shows the need for serious research on the correlation between oil demand, oil prices and the population increase in the contemporary international community; it also seems important to make attempts to regulate this correlation. It is necessary to overcome the consumers' fears concerning the regularity and reliability of energy supply. They allocate significant funds to the development of extraction and transportation infrastructure and need certainty as to demand for their produce. The problems mentioned should be supervised by the international community in order to prevent crises pertaining to the inefficiency of the world energy system. Such crises result in the growing instability of political processes throughout the world.

One should mention the important role of Russia in contemporary energy security as well as its special standing among energy suppliers, which is explained by the volume of energy reserves and energy transit. The potential of the country's natural energy resources is one of the greatest in the world, which means stability and large supply. "A country that accounts for less than 3% of the world's population possesses 26.6% of global natural gas reserves, 6.2% to 13% (according to different estimates) of global proven oil reserves, and about 20% of known coal reserves. The country is the world's leading pipeline gas supplier and the world's No. 1 oil exporter (together with Saudi Arabia). More than 90% of Russian energy exports today go to European countries [5].

Energy security is the cornerstone in the global security system. It is closely connected with environmental safety both at a national and a global level. Modern economy is based on fuel that is not renewable and, above all, damages the environment and human health. Energy systems significantly affect the planet since they contribute to the climate change, which is a result of enormous annual emissions of hydrocarbon, more than a ton per human inhabitant. Therefore, the sustainable existence of international community requires an environmentally-friendly strategy of energy development, which is of special importance in the current economic crisis. Its implementation can become a crucial tool for the international community to overcome the present crisis state.

Today it has become obvious that neither oil, nor coal, nor nuclear energy will be efficient to meet future energy needs. After the 1970-1980s energy crises, the decision was made to reduce the dependence on oil. By the early 21st century this goal had been partly achieved, though oil did not yield to other traditional energy sources. The programmes of the production of petrol from coal or crops did not affect the development of global energy. The reduction of oil dependence was reached by means of the increasing efficiency of energy use.

We believe that today the further reduction of the adverse effect of the world's energy industry on the global ecosystem can be achieved two ways. The first way is short-term. It is the above-mentioned increase in the energy use efficiency. Growing efficiency should become a priority of all states over the next 15-20 years. It would help overcome the crisis and, at the same time, would diminish economic and environmental damage caused by contemporary energy systems. This energy policy would also allow us to buy time for the transition to renewable energy.

The second way is long-term. It is based on gradual expansion of renewable energy sources and is aimed to avoid the repetition of economic and energy crises. At the same time, it is of great environmental importance. So far, renewable energy technologies are mostly less economical than traditional non-renewable energy sources. This gap between renewables and non-renewables will slowly narrow. Nevertheless, today it is more lucrative to increase the efficiency of already functioning facilities than to set new ones in operation. Thus, the introduction of renewable energy technologies requires a significant support of national governments, international organisations and business.

The development of a viable energy system that would limit the use of fossil fuels is feasible. But there are serious obstacles in its way. One of them is the inconsistency in energy policy. Therefore, contemporary governments should solve the following problems to carry out an intelligent energy policy aimed at environment protection. Firstly, governments should create favourable conditions for continuous innovations and the commercialisation of energy technologies. Secondly, they have to ensure a more efficient performance of the energy market as to the formulation of energy policy and to take into account its environmental impact.

The most serious problem of air protection is global warming caused by the accumulation of greenhouse gases. The most abundant of them is carbon dioxide. The greenhouse effect leads to the emission of additional 6-8 bln tons of carbon into the atmosphere as a result of deforestation and fossil fuels combustion. To slow down this process, it is essential to reduce the areas of destroyed forests and develop technologies based on renewable energy sources. The solution of this problem is of global importance. Thus, a more efficient energy is an effective tool to reduce air pollution and ensure global energy security.

Afforestation at a scale large enough to meet future needs for timber, fuel wood and paper will stabilise soils and regimen and contribute to the restoration of hydrocarbon balance through the transfer of carbon from the

atmosphere into ground facilities. Today the world's forests absorb more than 40% of carbon emissions. The expansion of quick-growing tree plantations could help increase carbon absorption.

Emission reduction requires a significant increase in the efficiency of energy use, as well as changes in the energy source structure. Over the last two decades, the increase in the energy system efficiency has played the leading role in the development of the power industry. In future, the development of innovative technologies will trigger the transition to renewable energy sources. According to analyst estimates, a 1.5% annual increase in efficiency alongside a deliberate policy to reduce the usage of coal, greenhouse gases and to restrict the extent of deforestation may decrease the temperature rise predicted by 2075 by half.

Renewable energy sources and nuclear energy also diminish the carbon content in the atmosphere substituting the energy of fossil fuels. Before the 1986 Chernobyl disaster, nuclear power industry had rapidly developed contributing to climate protection. But Chernobyl showed that nuclear energy, in certain emergency situations, can also be very dangerous for human health and the environment, therefore the development of industry has slowed down over the last two decades due to the reduction in the number of new nuclear power plants. Some countries, for instance Sweden, made a decision to end nuclear energy generation and began a phase-out. The last Swedish nuclear power plant will be closed in 2010. Despite the claims of the advocates of nuclear power, including the experts of the International Atomic Energy Agency (IAEA) that it can contribute to climate protection, the technical, economic, and political problems related to this type of energy are increasingly acute and curb its expansion.

The situation pertaining to greenhouse effect can be improved by a rapid long-term transition to renewables. The most promising renewable energy source is hydropower. A significant number of geothermal, wind, and solar power plant projects are likely to be launched in the next decade. In the long-term perspective, renewables should be used to combat the global greenhouse effect.

Energy policy makers encounter serious problems. They have to raise tens of millions of dollars for climate protection, while the solution of social issues related to education, healthcare etc. require substantial funds. The financing of new projects, including those in the field of energy, has become problematic in the conditions of the current economic crisis. Nevertheless, experts claim that a significant part of funds required for the increase in innovative energy use efficiency can be reallocated from traditional power industries. Specialists emphasise that new developments of global energy should be less costly than the energy of the previous generation.

We believe that, today, investment in the reduction of power industry impact can be made by concerned and competent political agents. These agents are, first of all, the governments of states oriented towards environmental conservation. For example, the Declaration of the Leaders of the Major Economies Forum on Energy and Climate was adopted at the recent G8 summit, which was held in the Italian city of L'Aquila on 8-10 July 2009 [3].

It stressed the interdependence between energy and ecology security in the current conditions. This document stipulates the establishment of a new Global Partnership to drive transformational low carbon climate-friendly technologies [1]. The solution of this problem can involve, alongside governments, socially responsible corporations, companies engaged in hydro-power development and wood fuel supply. National and international environmental organisations can provide the support of public opinion.

The global climate problem, which is aggravated by the current instability of the world's energy system, is indeed a potential threat to the normal life and progressive development of humanity. Experts proved that the life on our planet as we know it is possible only within a narrow temperature range. Climate change can force temperature beyond this range. A several degree increase in global average temperature can be disastrous for the planet.

Firstly, it would cause intensive melting of polar icecaps in the Arctic and the Antarctic, which would lead to the rise in sea level and the flooding of some coastal territories in a number of states. These coastal territories play, as a rule, an essential role in many countries and have high population density. It means that millions of people may become climate refugees. Secondly, warming is fraught with significant changes in global agricultural and industrial zoning. If the mentioned cataclysms do take place, they will affect the vital interests of millions of people, trigger mass migrations into the regions devoid of developed infrastructure and, finally, lead to severe political and social consequences.

For example, according to the forecasts of the famous international non-governmental organisation that deals with a variety of global issues – the Club of Rome – climate warming will force approximately 20 million people from Egypt only, since the Nile will burst its banks and flood the most fertile areas. A temperature rise above the optimum range will reduce the US cereal reserves by half. A significant part of the Midwestern United States will turn into temperate grasslands. The fertile lands will shift to the North devoid of crop areas, since a considerable part of Canada is situated in the permafrost zone.

Scholars believe that the elimination of the threat of overheating requires extraordinary efforts of the whole world community. The coordination and integration of these efforts is impossible without a corresponding international legal framework. Its first cornerstone is the UN Framework Convention on Climate Change (UNFCCC). The governing body that controls the execution and development of this international treaty is the Conference of the Parties (COP). Its meetings, as a rule, discuss the issues related to the implementation of the Convention's provisions and related international agreements, meet decisions on the further development of the Convention provisions and on negotiations towards new commitments. The Conferences have been held annually since 1995. Most attention was attracted to the Third Conference that took place in Kyoto in December 1997 and the recent Fifteenth Conference held in Copenhagen in December 2009.

An important international document – the Kyoto Protocol, a protocol to the UN Framework Convention on Climate Change – was approved at the Third Conference of the Parties. Under the document, developed countries and transition economies commit themselves to a reduction of greenhouse gases in 2008-2012 from the 1990 level. By 2009, the protocol has been ratified by 181 countries (that account for more than 61% of the world's emission). The implementation of the Kyoto Protocol started on 1 January, 2008. This process will take five years and terminate on December 31, 2012, when the Protocol will be succeeded by a new agreement. The conclusion of the agreement was expected to take place in December 2009 at the mentioned Fifteenth UNFCCC Conference of the Parties. The capital of Denmark had a chance to give its name, as the Japanese city of Kyoto did, to a fundamental international agreement and leave its mark on the history of world environmental diplomacy. But both the process and the results of the conference buried this opportunity.

At the Copenhagen conference, a serious debate broke out as to the conclusion of a new international agreement on climate that should have succeeded the Kyoto Protocol after its termination on December 31, 2012. As we know, according to the protocol, major commitments were taken on by industrialised countries: the EU to reduce emissions by 8%, Japan and Canada – by 6%, Eastern European and Baltic States – by 8% on average, Russian and Ukraine to stabilise annual emission in 2008-2012 at the 1990 level. Developing countries, including China and India did not take on any binding commitments in the framework of this international agreement. Most of developed western states stood for the modernisation of the Kyoto Protocol. In the framework of the new agreement all members of international community – both developed and developing countries – should commit to limit green house gas emissions.

This proposal was firmly rejected by the international organisation of developing countries – the so-called G77 which emerged as early as the 1960s. Now it brings together more than 130 countries; at the Copenhagen Conference, China held its position. This group is convinced that there is no need for revision and that the GHG pollution of the atmosphere is the fault of developed countries, which, being immersed in technical and economic development in the 19th-20th century, were neglecting environmental aspects. Today, developing countries are dedicated to unlock their economic potential and, when they reach the level of developed countries, will take on commitments on environmental protection. Developed countries believe that the period of transition has come to an end and all countries should share responsibility, though still unequal, in combating global warming. The clash of these opposite opinions in Copenhagen resulted into serious political contradictions.

The conference was concluded with the UN world summit on climate change, which was attended by 110 heads of states and international organisations. As a result the parties did reach a final agreement. Some experts and politicians consider this agreement momentous and unprecedented. The defenders of this point of view refer to the fact that a number of countries re-

sponsible for the greatest GHG emission including the USA and China could arrive at consensus over a number of issues concerning global warming control. In particular, an agreement was reached as to the limitation of temperature growth to 2 degrees. To achieve this goal, the agreement stipulates that all states should submit emissions targets by February 2010. The USA and Western European countries are expected to allocate finance (from 10 to 30 bln dollars according to different estimates) for developing countries to tackle climate change.

Other specialists consider the Copenhagen conference unsuccessful and even a failure, since the agreements achieved are, per se, political declarations, which, unlike international legal agreements, are not binding.

In our opinion, an indisputable result of the global environmental debate in Copenhagen is the acknowledgement of the further aggravation of the climate change problem and the imperfection of the political and diplomatic mechanisms applied to solve it.

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